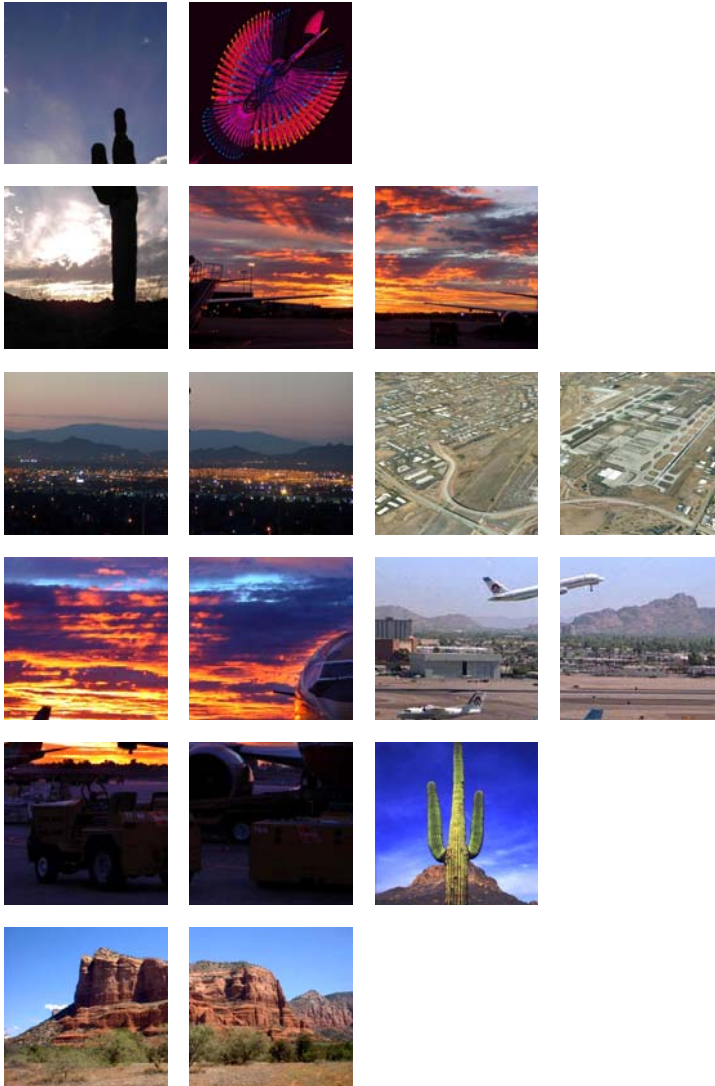


Section 4

Facility Utilization





Section 4 Facility Utilization

In this task, the existing and future level of utilization for a Regional ARFF Training Facility in Arizona is estimated. Airport, military, and non-airport ARFF personnel training needs have been examined as part of this assessment. This information is derived from surveys and discussions with airport, military and fire department representatives. All airports, including military airports, within Arizona have been solicited for their input. In addition, airports, particularly Part 139 airports, in bordering states are included in the study. Finally, numerous fire departments within Arizona were contacted and polled to determine their level of interest in ARFF training.

4.1 Arizona Airport Users

Table 4.01 below is a list of 83 public use airports in Arizona contacted and polled for this study. This list includes 11 Part 139 certificated commercial service airports and 72 general aviation facilities. A 25-question survey was distributed to these airports via e-mail, fax, or first-class mail to determine their ARFF training needs and current training locations. Appendix C provides a copy of this survey. When possible, these surveys were distributed by e-mail or fax.

Table 4.01
Arizona Public Use Airports

<i>Ajo</i>	<i>Grand Canyon Caverns</i>	<i>Rolle Airfield</i>
<i>Avi Suquilla</i>	<i>Grand Canyon National Park*</i>	<i>Ryan Airfield</i>
<i>Bagdad</i>	<i>Grand Canyon Valle</i>	<i>Safford</i>
<i>Benson Municipal</i>	<i>Grand Canyon West</i>	<i>San Manuel</i>
<i>Bisbee Municipal</i>	<i>Greenlee County</i>	<i>Scottsdale</i>
<i>Bisbee/Douglas</i>	<i>Williams</i>	<i>Sedona</i>
<i>Buckeye</i>	<i>Holbrook</i>	<i>Seligman</i>
<i>Casa Grande</i>	<i>Kayenta</i>	<i>Sells</i>
<i>Chandler</i>	<i>Kearny</i>	<i>Show Low</i>
<i>Chinle</i>	<i>Kingman*</i>	<i>Sierra Vista</i>
<i>Cibecue</i>	<i>Laughlin/Bullhead*</i>	<i>Springerville</i>
<i>Cochise College</i>	<i>Lake Havasu</i>	<i>St. Johns</i>
<i>Cochise County</i>	<i>Marana Northwest Regional</i>	<i>Stellar</i>
<i>Colorado City</i>	<i>Marble Canyon</i>	<i>Sun Valley</i>
<i>Coolidge</i>	<i>Mesa Falcon Field</i>	<i>Superior</i>
<i>Cottonwood</i>	<i>Nogales</i>	<i>Taylor</i>
<i>Douglas Municipal</i>	<i>Page*</i>	<i>Tempe Bar</i>
<i>Eagle Airpark</i>	<i>Payson</i>	<i>Tombstone</i>
<i>Eloy Municipal</i>	<i>Pearce Ferry</i>	<i>Tuba City</i>
<i>Estrella</i>	<i>Phoenix Deer Valley</i>	<i>Tucson International*</i>
<i>Flagstaff*</i>	<i>Phoenix Goodyear</i>	<i>Tuweep</i>
<i>Flying J Ranch</i>	<i>Phoenix Regional</i>	<i>Whiteriver</i>
<i>Forepaugh</i>	<i>Phoenix Sky Harbor*</i>	<i>Wickenburg</i>
<i>Gila Bend</i>	<i>Pinal Airpark*</i>	<i>Williams Gateway*</i>
<i>Glendale Municipal</i>	<i>Pleasant Valley</i>	<i>Window Rock</i>
<i>Globe – San Carlos</i>	<i>Polacca</i>	<i>Winslow</i>
<i>Grand Canyon Bar 10</i>	<i>Prescott*</i>	<i>Yuma*</i>

* indicates Part 139 certificated airport



4.2 Arizona Military Users

Arizona's military airports were considered potential users of a regional ARFF training facility in the state and were therefore included in the survey distribution. The following is a list of the military airports contacted for this study.

Luke Air Force Base – Luke Air Force Base (AFB) is located in Glendale, a western suburb of Phoenix and is the largest F-16 training base in the world.

Davis Monthan Air Force Base – Davis Monthan (DM) AFB is located in Tucson and is home of the 355th Wing/12th Air Force.

Marine Corps Air Station Yuma – Marine Corps Air Station (MCAS) Yuma is a joint use facility and shares the airfield with Yuma International Airport in southwestern Arizona. MCAS Yuma is home to a number of tenant units including Marine Aviation Weapons and Tactics Squadron-1, Marine Aircraft Group-13, Marine Wing Support Squadron-371, Marine Fighter Training Squadron-401, Marine Air Control Squadron-1 and Combat Service Support Detachment-16.

161st Air National Guard – The 161st Air National Guard (ANG) is located on the south side of Phoenix Sky Harbor International Airport. The 161st ANG is an air refueling wing and currently operates a fleet of KC-135 Stratotankers.

162nd Air National Guard – The 162nd ANG is an F-16 Fighter Wing located at Tucson International Airport.

Fort Huachuca – Fort Huachuca is the United States Army installation housing the US Army Intelligence Center and is located in southern Arizona. The Army operates a joint-use airfield at Sierra Vista.

4.3 Out of State Airport Users

As this will be a *regional* ARFF training facility and therefore will look to draw students from more than just Arizona, airports in neighboring states were also included in this study to determine their potential use of this facility. Airports, particularly Part 139 airports in Southern California, Colorado, Nevada, New Mexico, and Utah were sent the same survey that was sent to the Arizona airports. Table 4.02 lists the non-Arizona airports contacted for the study.



Table 4.02
Regional Non-Arizona Airports

<i>Southern California Airports</i>		
	Burbank – Glendale – Pasadena John Wayne Airport – Orange County Long Beach/Daugherty Field Los Angeles International Meadows Field (Bakersfield) Ontario International	Oxnard Palm Springs International San Diego International San Luis County Regional Santa Barbara Municipal Santa Maria Public Airport/ Capt G Allan Hancock Field
<i>Colorado Airports</i>		
	Aspen – Pitkin County/Sardy Field Colorado Springs Municipal Cortez Municipal Denver International Durango – La Plata County	Gunnison – Crested Butte Regional Lamar Municipal Montrose Regional Pueblo Memorial Telluride Regional
<i>Nevada Airports</i>		
	Elko Regional Henderson Executive McCarran International	North Las Vegas Reno/Tahoe International
<i>New Mexico Airports</i>		
	Alamogordo – White Sands Regional Albuquerque International Cavern City Clovis Municipal Four Corners Regional Gallup Municipal Grant County	Lea County Regional Las Cruces International Los Alamos Roswell Industrial Sierra Blanca Regional Santa Fe Municipal
<i>Utah Airports</i>		
	Cedar City Regional St. George Municipal	Vernal/Uintah County

The following is a list of the non-Arizona airports that responded to the survey:

- John Wayne Airport – Orange County;
- Long Beach/Daugherty Field;
- Ontario International;
- Palm Springs International;
- Aspen – Pitkin County/Sardy Field;
- Gunnison – Crested Butte Regional;
- Lamar Municipal;
- Henderson Executive;
- Cavern City Air Terminal; and
- Cedar City Regional.



Responses to the surveys can be found in Appendix D. The following information is a summary of information derived from the airport users survey.

Airport and ARFF Characteristics – Of the 21 total responses, six are Arizona Part 139 certificated airports, eight are Part 139 airports from other states, and seven are non-certificated. Of the Part 139 airports, four are Index A, five are Index B, three are Index C, and two are Index D. There are no Index E airports. Five airports report their index is expected to increase in the future.

Number of Trainees, Frequency and Location – The survey asked each airport about the number of ARFF trainees that could potentially use the new facility. The survey also asked how frequently training occurs and where they complete this training.

The average number of trainees per response to this question was 28, with a low of 2 and a high of 130. Nearly two-thirds of the survey responses cited between 2 and 10 trainees. The remainder of the responses cited a wide range from 18 to 130 possible trainees. All responses, except one, to questions regarding frequency of live-fire training indicated that training occurred once a year. One respondent indicated training was completed biennially. Training location varied among respondents with the highest number (nine) being the Salt Lake City Regional ARFF Training Facility at Salt Lake City International Airport.

Respondents did not appear committed to training at the same facility year after year, and some have indicated several facilities used in recent years. Other identified facilities include: Dallas Fort Worth (DFW); Soccaro, New Mexico; Luke AFB; Texas A&M University; University of Nevada Elko; Helena, Montana; Mesa Fire Training Facility; Peterson AFB; and Duluth, Minnesota.

Use of a Mobile ARFF Trainer – The response to mobile ARFF training was favorable, with seven of 12 responses indicating they would use a mobile ARFF trainer. Three respondents were not sure, while only two respondents said they would not train with this method.

Available Training Budgets – Current ARFF training budgets per student ranged from a low of \$100 to a high of \$3,000. The average training budget for the 12 surveys that responded to the question is approximately \$1,100 per student. Some respondents indicated that funds for ARFF training are received through grants.

Maximum Travel Distances and Desirable Location – Travel distances for training purposes were reported in terms of both miles and time. Respondents indicated they would be willing to send their trainees up to 450 miles by car/bus or up to 1,000 miles by aircraft. 43 percent of the responses stated that the most desirable location in Arizona would be central Arizona, followed by Northern Arizona (24%) and no preference (19%). An airline accessible location is preferred by out of state respondents.

Firefighting Agents and Training Methods – All respondents currently train using water and/or foam extinguishing agents while just a few use dry chemical agents. Handline and truck



training are the most common methods of training. Two-truck tactics were indicated as desirable.

Preferred Simulation Types and Technologies – Fuel spill, fuselage, wing, engine, landing gear, compartment, structural, and smoke simulations were indicated as desirable training scenarios in all responses to these questions. Roughly half of the respondents preferred hydrocarbon and the other half preferred propane simulation.

Preferred ARFF Training Facility Features – A classroom and locker room are the most desired additional features in a training facility. Other desirable features include a dining area, meeting rooms, kitchen, first aid room, and vending machines.

4.4 Non-Airport Users

In addition to airport firefighting personnel, potential non-airport users of the ARFF training facility were identified. These users are primarily made up of county, city, volunteer, and private fire departments throughout the state. This group was considered in this study as they often have airport response obligations at small general aviation airports throughout the state, and are often identified as first responders to off-airport incidents.

A distribution list of 285 fire departments in Arizona was developed and a 10-question survey was distributed to 186 of these fire departments to determine their interest and anticipated participation in ARFF training should that training be made available regionally. The survey questionnaire is provided in Appendix C. The list of fire departments contacted can be found in Appendix E.

36 of the fire department surveys were returned and the information below summarizes the survey results.

Facility Utilization – Twenty-five of the 36 respondents (69%) said they were likely to use a regional ARFF training facility in Arizona if available. Fees, location of the facility, and curricula are the largest factors for these users to consider.

Location of ARFF Training Facility – Almost half of the respondents indicated that the Phoenix metropolitan area in central Arizona was the preferred location. Eight respondents indicated they would travel 50 miles or less. These eight respondents are located in the Phoenix metropolitan area and represent 458 possible trainees.

Number of Trainees and Frequency of Training – Sixteen respondents (44%) indicated they would send 10 or more firefighters to this facility for training. Of these 16, half said they would send 25 or more personnel for training, with two departments sending 100 or more firefighters each. Six respondents (17%) indicated they would send no personnel to this facility. Most affirmative responses (61%) indicated training could occur at least on an annual basis.

Other Desired Training – The fire departments indicated that, in addition to ARFF, they would like several other training simulations offered. The most requested additional training included



hazardous materials, technical rescue (including confined space, high angle, water rescue), structural, and weapons of mass destruction (WMD). Other training simulations mentioned included command and control, driving, mass casualty, classroom, and wildland.

Given the responses to this survey, there appears to be significant interest by non-airport users for the Regional ARFF Training Facility, assuming that the facility is located appropriately and training costs can be budgeted for.

4.5 Facility Demand

An estimate of current and future demand for the ARFF training facility was developed based on survey responses and other data.

4.5.1 Existing Demand

The demand for this proposed facility is determined by the needs of the primary users - Part 139 certificated airports' firefighters required to receive initial and recurrent (e.g., annual live-fire) training - and non-primary users, including other airport related firefighters (general aviation and military airports) and non-airport related firefighters.

Based on survey responses and previous studies, there are approximately 248 airport firefighters requiring annual live-fire training from Arizona based Part 139 airports. In addition, the 1995 ADOT ARFF Study (Greiner) indicates there are about 292 Arizona military airport firefighters that could train at a regional ARFF training facility. Finally, surveys indicate that there are 194 non-Arizona based Part 139 firefighters that have been identified as potential users of a facility in Arizona. Table 4.03 below summarizes this information. The survey results indicate that 636 to 678 Arizona based non-airport firefighters show interest in and would consider using the proposed training facility. This information is presented below in Table 4.04.



Table 4.03
Airport Users
ARFF Index and Firefighters

Airport	ARFF Index	Approximate Number of Firefighters
Arizona Part 139 Airports		
Ernest A. Love Field (Prescott)	A	3
Flagstaff Pulliam	A	6
Grand Canyon National Park	A	8
Kingman	A	15*
Laughlin/Bullhead Int'l	A	7
Page Municipal	A	4
Phoenix Sky Harbor Int'l	D	130
Pinal Airpark	L	15*
Tucson Int'l	D	17*
Williams Gateway	B	36
Yuma MCAS/Yuma Int'l	A	7
Current Part 139 AZ Airports Firefighters		248
Arizona Military Airports*		
Yuma MCAS	N/A	130
Davis Monthan AFB	N/A	35
Luke AFB	N/A	55
161 st ANG	N/A	24
162 ANG	N/A	48
AZ Military Airports Firefighters		292
Out-of-State Part 139 Airports		
Gunnison	B	10
Aspen/Pitkin County	B	18
Palm Springs International	C	9
Long Beach	C	45
John Wayne/Orange County	C	45
Ontario International	D	67
Out-of-State Part 139 Firefighters		194
Total Airport Firefighters		734

**estimate from Feasibility Study and Environmental Review for a Regional Aircraft Rescue and Fire Fighting Training Facility, First Draft Report, 1995*



Table 4.04
Non-Airport Users
Arizona Fire Departments

Fire Department	Approximate Number of Firefighters	Fire Department	Approximate Number of Firefighters
Apache Junction FD	80	Mesa FD	100
Arivaca FD	6-8	Peebles Valley FD	4-6
Blue Ridge FD	6	Prescott FD	9-12
Chino Valley FD	6	Rincon Valley FD	1-3
Drexel Heights FD	12	Show Low FD	35
Fort Mohave Mesa FD	35	Tempe FD	12-24
Gilbert FD	36	Three Points FD	14
Glendale FD	168	Tusayan FD	15-20
Goodyear FD	50	Verde Valley FD	6
Lake Havasu FD	21-25	Willcox FD	10-12
Mayer FD	10-20	Luke AFB Gila Bend Aux Field	26
Total Non-Airport Firefighters			
Low Estimate		632	
High Estimate		678	

Based on the information presented above, it is estimated that there is existing annual demand to train 734 airport-user firefighters and 632 to 678 non-airport user firefighters. This is a total potential annual demand of 1366 to 1412 trainees.

4.5.2 Future Demand

To determine future demand levels for a regional ARFF training facility in Arizona, many sources were considered. Of considerable importance are changes in airport ARFF indices as well as anticipated additional Part 139 certificated airports in Arizona.

Considering FAA, airline, and aircraft manufacturer forecasts of aviation activity, it is likely that existing Part 139 airports will see an increase in activity and a change in fleet mix. Because the FAA does not specify a required number of firefighters at the Part 139 airports by ARFF index, it is difficult to determine accurate future demand. Future demand can be categorized as growing from existing demand levels as airports continue to handle increasing numbers of aircraft operations.

Prescott, Laughlin/Bullhead International, Grand Canyon, Flagstaff, Williams Gateway, and Phoenix Sky Harbor Airports are all anticipating an increase in ARFF index in the five to 20 year horizon. Table 4.05 indicates current Arizona Part 139 airports' ARFF indices and anticipated future indices as indicated in survey responses. No out-of-state airports indicated changes to their future ARFF indices.



Table 4.05
Current and Future ARFF Indices
Arizona Part 139 Airports

Airport	Current Index	Future Index
Ernest A. Love Field (Prescott)	A	B
Flagstaff Pulliam	A	B
Grand Canyon National Park	A	B
Kingman	A*	N/A
Laughlin/Bullhead Int'l	A	B
Page Muni	A	A
Phoenix Sky Harbor Int'l	D	E
Pinal Airpark	L** (limited Use)	N/A
Tuscon Int'l	D**	N/A
Williams Gateway	B	D*
Yuma Int'l	A	B

*Source: *Feasibility Study and Environmental Review for a Regional Aircraft Rescue and Fire Fighting Training Facility, First Draft Report, 1995, Greiner*

**Source: <http://www.airportnet.org/depts/regulatory/arff/arffindex.html>; 01/26/04

From the data collected in the surveys, the average number of trainees by airport ARFF index are approximately as follows:

- Index A – 6 trainees;
- Index B – 17 trainees;
- Index C – 33 trainees; and
- Index D – 99 trainees.

Future levels of trainees at Part 139 airports have been calculated using these averages and are presented in Table 4.06. With the increases in ARFF Indices as indicated above, the number of ARFF personnel at these airports is expected to increase by 45 percent, or an additional 111 positions.

Additionally, the City of Goodyear has indicated that they would be doubling their number of personnel that would participate in ARFF training from 50 to 100 (an increase of 50 trainees). It is also reasonable to assume that as other cities in Arizona grow, they too will want to provide this specialized training to their personnel. However, at this time, no others have indicated by what rate they would be increasing staff in their respective departments.



Table 4.06
Current and Future Numbers of ARFF Trainees
Arizona Part 139 Airports

Airport	Current Number of ARFF Trainees	Future Number of ARFF Trainees
Ernest A. Love Field (Prescott)	3	17
Flagstaff Pulliam	7	17
Grand Canyon National Park	8	17
Kingman	15*	N/A
Laughlin/Bullhead Int'l	7	17
Page Muni	4	6
Phoenix Sky Harbor Int'l	130	170
Pinal Airpark	15*	N/A
Tuscon Int'l	17*	N/A
Williams Gateway	36	99
Yuma Int'l	7	17
Total Trainees	249	360
Additional Future Demand		111

*Source: *Feasibility Study and Environmental Review for a Regional Aircraft Rescue and Fire Fighting Training Facility, First Draft Report, 1995, Greiner*

From this analysis, 161⁴ additional trainees have been identified to increase future demand. This represents an approximate 12 percent increase over existing demand with a total in the range of 1527 to 1573 trainees.

⁴ 111 Part 139 airport trainees plus 50 additional trainees from Goodyear.